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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Siegfried Herbold

Examiner:

Serial Number: 10/602,097

Art Unit:

Filed: June 23, 2003

Atty Docket No: 024-1-038

For: "Torque Sensor for Calibrating Screwing Tools"

SUPPLEMENTAL TO INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

As indicated in the Information Disclosure Statement dated September 16, 2003, cited prior art German Patent Application DE 195 02 616 A1 is discussed in the Background of the Invention section of this application. Cited WO 99/40403 has an English abstract which explains the invention disclosed therein. With regard to German Patent DE 40 12 829 C2, the object of the invention is specified as: "to provide a device of the type mentioned in the beginning (according to the preamble of claim 1) which, with excellent accuracy, permits force measurement by multi-dimensional force pick-up with simple design of the device, an accurate result with few sensor elements being obtained by a particular way of interconnection and arrangement of the sensors" (column 1, lines 52 to 59). The claims of DE 40 12 829 C2 read as follows:

1. Device for multi-dimensional measurement of force and of quantities derived therefrom by measuring value pick-up by means of electric sensors, for example strain gages, piezoelectric elements or the like, wherein four diaphragm webs are arranged cross-shaped, on each of which at least two electric sensors are mounted the terminals of which are interconnected in bridge circuits, a device, for example a hub, being provided in the centre of the frame for three-dimensional picking up force, characterized in that two electrical sensors (8, 9 and 10, 11,

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Signed: Robert R. Mallinckrodt Dated: June 21, 2004
Robert R. Mallinckrodt

respectively) are arranged side-by-side on the front side of each of the two diametrically opposite flat webs (3, 4), the opposite terminals of the sensors being interconnected directly through wires (20, 21), and the opposite other terminals of the sensors being interconnected crosswise by wires (22, 23), and that two electrical sensors (12, 13 and 14, 15) are arranged diametrically one behind the other on the front side of each of the two diametrically opposite flat webs (5, 6), one of the terminals of each of the sensors being interconnected by wires (24, 25), and the other ones of the terminals of the sensors being connected through wires (26, 27) from radially inner to the radially outer sensor.

2. Device as claimed in claim 1, characterized in that two electrical sensors (16, 17 and 18, 19, respectively) are mounted side-by-side on the rear side of each of the two flat webs (5, 6), the opposite ones of the terminals being directly interconnected and the opposite other ones of the terminals are interconnected crosswise.
3. Device as claimed in claim 1 or 2, characterized in that, for measuring torsion or torques, the sensors are arranged at an angle of 45° relative to the axis of the respective web.

Please charge any fees due and credit any overpayments to Deposit Account No. 13-1175 of the undersigned.

Respectfully,

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June 21, 2004
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